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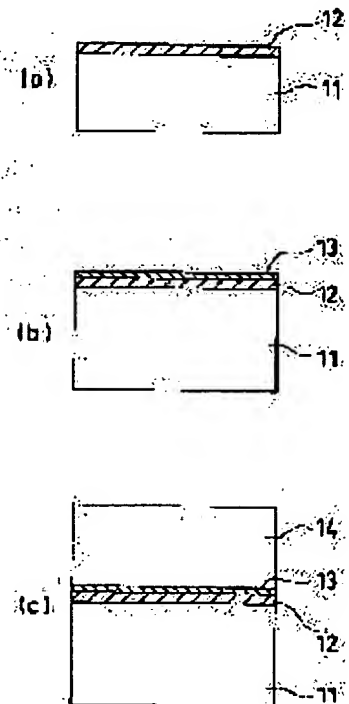
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(54) MANUFACTURE OF GALLIUM NITRIDE COMPOUND SEMICONDUCTOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method by which a high-quality GaN compound semiconductor crystal having a low dislocation density can be grown.

SOLUTION: A Ga thin film 12 having a thickness of about 50nm or thinner is formed on a silicon substrate 11 by a molecular beam growing method. Then a nitride layer 13 is formed on the film 12 by using the metal organic chemical vapor deposition(MOCVD) method and a GaN crystal is grown on the layer 13 by using the MOCVD method. Since the lattice defect caused by lattice unmatched, the thermal strain caused by the difference in coefficient of thermal expansion, and the surface energy are relieved by the function of the liquid Ga thin film 12, the GaN crystal is grown in two-dimensional directions and a GaN crystal having such a low dislocation density as about 10^5cm^{-2} is obtained. It is also possible to directly grow a compound semiconductor crystal of a gallium nitride, such as GaN, etc., on the Ga thin film without forming the nitride layer 13.



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